



Pain free hospital - availability (24 hours) of anesthesiologists

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Abstract

“Pain Free Hospital” should be a new Anesthesiologist Domain. It is because the anesthesiologist is the most knowledgeable physician in pain control during the operation as well as in the recovery room. There is no reason why to stop this pain treatment in the wards. As mentioned by the American Society of Anesthesiologists Task Force on Acute Pain Management: “Availability (24 hours) of anesthesiologists”. A profound adjustment in the “pain free hospital” project is needed based on the availability of an anesthesiologist around the clock and not relying on other physicians or nurses.

Keywords: Pain free hospital, acute pain management

Etymology of pain

First attested in English in 1297, the word pain comes from the Old French *peine*, in turn from Latin *poena*, “punishment, penalty” (in L.L. also “torment, hardship, suffering”) and that from Greek “*ποινή*” (*poine*), generally “price paid”, “penalty”, “punishment”. It also exists in Frisian as “*pine*” which in turn is related to the English verb “to pine” which means to long for.

From aristotle to the fifth vital sign

Aristotle believed that pain was due to evil spirits that entered the body through an injury. Hippocrates believed that pain was caused by an imbalance in the vital fluids of a human. René Descartes theorized that the body was more similar to a machine, and that pain was a disturbance that passed down along nerve fibers until the disturbance reached the brain [1].

In 1975, well after the time of Descartes, the International Association for the Study of Pain sought a consensus definition for pain, finalizing “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” as the final definition [2].

The phrase “fifth vital sign” usually refers to pain, as perceived by the patient on a pain scale of 0–10. For example, the Veterans Administration made this their policy in 1999. However, some doctors have noted that pain is actually a subjective symptom, not an objective sign, and therefore object to this classification.

Practice guidelines for acute pain management in the perioperative setting. An updated report by the american society of anesthesiologists task force on acute pain management

Interventions and practices considered

1. Development of institutional policies and procedures for perioperative pain management

- Education and training of healthcare providers and patients
- Monitoring and documentation of data
- Monitoring of institutional patient outcomes

- Availability (24 hours) of anesthesiologists
 - Use of dedicated acute pain service
2. Preoperative patient evaluation
- Pain history
 - Physical exam
 - Development of a pain control plan
3. Preoperative preparation
- Adjustments and/or continuation of medications
 - Treatments to reduce preexisting pain and anxiety
 - Premedications as part of a multimodal analgesic pain management program
 - Patient/family education including behavioral pain control techniques
4. Perioperative pain management
- Epidural or intrathecal opioid analgesia (morphine, fentanyl)
 - Patient-controlled analgesia with systemic opioids (morphine)
 - Regional techniques (peripheral nerve blocks, postincisional infiltration with local anesthetics)
5. Multimodal techniques for pain management
- Oral opioids combined with nonsteroidal anti-inflammatory drugs (NSAIDs), cyclooxygenase-2 inhibitors (COXIBs), or acetaminophen
 - Regional blockade with local anesthetics
 - Individualized pain control regimens
6. Special considerations for patient subpopulations
- Care of pediatric patients
 - Care of geriatric patients
 - Care of other patient groups (patients who are critically ill, cognitively impaired (*e.g.*, Alzheimer’s disease), or who otherwise have difficulty communicating (*e.g.*, cultural or language barriers).

Major outcomes considered

- Pain level
- Adverse effects of pain therapy

- Rate of analgesic use
- Time to discharge
- Anxiety

Patient education outcomes in surgery

In 2004, Johansson and colleagues, in their systematic review covering the years 1990-2003, documented education interventions and their effectiveness in the treatment of surgical patients. While they provide a review of the state of knowledge until 2003, recent trends in preoperative education and its effects on postoperative patients' outcomes have not been documented in a systematic review. Ronco *et al.*, [2] studied preoperative educational interventions (including content and delivery time) and postoperative outcomes as considered in studies evaluating the effectiveness for patients undergoing major surgery published from 2004 to 2010. A systematic review of preoperative education and its effects on postoperative patient outcomes was undertaken. A search was conducted of the PubMed, CINAHL and EBMR databases, including the Cochrane Central Register of Controlled Trials.

Randomised controlled trials, or at least clinical trials including pre-/post-test evaluations, with educational interventions performed by nurses preoperatively and outcomes evaluated postoperatively, and written in English, were included. A total of 19 studies involving 3944 patients were retrieved. Of these, 12 were randomised controlled trials. Interventions were based on verbal education, on written/visual education, or both. The content of interventions varied widely. Frequent outcomes evaluated were anxiety, knowledge, pain and length of stay. Objective knowledge (what a patient retains from education) was the only positive outcome influenced by education. Current trends in preoperative education are: scheduling education early; increased frequency of message exposure through several interventions and/or reinforcements; content frequently addressing postoperative management; the measurement of outcomes such as patients' cognitive, experiential and biophysiological aspects.

Side effects of postoperative pain

Pain after surgery is common, often severe and largely unnecessary. Effective relief of post-operative pain is vital, and not just for humanitarian reasons. Such pain probably prolongs hospital stay, as it can affect all organ systems, including: respiratory (*e.g.* reduced cough, sputum retention, hypoxaemia); cardiovascular (*e.g.* increased myocardial oxygen consumption, ischaemia); gastrointestinal (*e.g.* decreased gastric emptying, reduced gut motility, constipation); genitourinary (*e.g.* urinary retention); neuroendocrine (*e.g.* hyperglycaemia, protein catabolism, sodium retention); musculoskeletal (*e.g.* reduced mobility, pressure sores, increased risk of DVT); and psychological (*e.g.* anxiety, fatigue). There is now evidence that post-operative pain relief has significant physiological benefit [3].

Postoperative pain management in france and australia

Fletcher *et al.*, [4] carried out a national survey on postoperative pain (POP) management in a representative sample (public/private, teaching/non-teaching, size) of 76 surgical centers in France. Based on medical records and questionnaires, they evaluated adult patients 24h after surgery, concerning information: pre and postoperative pain, evaluation, treatment and side effects. A local consultant provided information about POP management. Data were recorded for 1900 adult patients, 69.3% of whom remembered information on POP. Information was mainly delivered orally (90.3%) and rarely noted on the patient's chart (18.2%). Written evaluations of POP were frequent on the ward (93.7%) with appropriate intervals (4.1 (4.0)h), but not frequently prescribed (32.7%). Pain evaluations were based on visual analog scale (21.1%), numerical scale (41.2%), verbal scale (13.8%) or non-numerical tool (24%). Pain was rarely a criterion for recovery room discharge (19.8%). Reported POP was mild at rest (2.7 (1.3)), moderate during movement (4.9 (1.9)) and intense at its maximal level (6.4 (2.0)). Incidence of side effects was similar according to patient (26.4%) or medical chart (25.1%) including mostly nausea and vomiting (83.3%). Analgesia was frequently initiated during anesthesia (63.6%). Patient-controlled analgesia (21.4%) was used less frequently than subcutaneous morphine (35.1%) whose prescription frequently did not follow guidelines. Non-opioid analgesics used included paracetamol (90.3%), ketoprofen (48.5%) and nefopam (21.4%). Epidural (1.5%) and peripheral (4.7%) nerve blocks were under used. Evaluation (63.4%) or treatment (74.1%) protocols were not available for all patients. This national, prospective, patient-based, survey reveals both progress and persistent challenges in POP management.

Taylor *et al.*, [5] described a quality improvement initiative in the management of acute postoperative pain in Australian hospitals. Multicentre, cross-sectional, retrospective inpatient medical record review and post-discharge surveys of patients and their General Practitioners (GPs), conducted between October 2006 and October 2007, before and after targeted educational intervention. Setting: 62 Australian hospitals - representing the spectrum of regional/remote to principal referral and including private and specialist hospitals. Up to 50 adults undergoing emergency/elective surgery per hospital, in each of baseline and follow-up phases. Documented preoperative education; pain and sedation assessment; safe and effective analgesic prescribing and communication of a pain management plan to patients/carers and their GPs at discharge. 2704 baseline (2780 follow-up) patients were included. Documentation of preoperative education regarding postoperative pain was noted for 31% (44%) of patients. 57% (76%) of patients had at least one pain score documented in the postoperative data collection period. Of patients prescribed analgesia, 68% (74%) were prescribed regular paracetamol and 23% (18%) only as needed analgesia. Of patients prescribed opioids, 50% (61%) had at least one

documented sedation score and 87% (90%) were prescribed an antiemetic agent. Discharge pain management plans were documented for 26% (40%) of patients and of these, 86% (87%) were communicated to patients and 71% (77%) to GPs. Targeted interventions including one-on-one educational visiting and feedback of comparative data improved some key outcome measures; performance and documentation of preoperative education, post-operative pain and adverse event assessment and discharge communication with patients and GPs.

80% of postoperative patients report pain after surgery

The management of postoperative pain continues to be challenging. Despite our best efforts, 80% of postoperative patients report pain after surgery. Four of 5 of these patients report moderate-to-severe pain [6] More than 18 years ago, Warfield conducted a telephone survey of patients' experiences with postoperative pain and demonstrated data consistent with these abysmal statistics [7] Sadly, almost 9 years ago, a similar telephone survey yielded almost identical results [8] Pain remains the primary reason why patients are readmitted following ambulatory surgery [9] This is particularly alarming when one considers that this was the decade of pain and that a number of significant pain initiatives occurred. The Joint Commission on the Accreditation of Healthcare Organizations established pain management guidelines identifying pain as the "fifth vital sign." The American Society of Anesthesiologists published their Acute Pain Guidelines [10] A number of other societies also made significant contributions to highlight the need for improved pain management. Clearly, despite enormous efforts and resources, there remain tremendous unmet needs in acute pain management.

Pain relief as a human right

"We must all die. But that I can save him from days of torture, that is what I feel as my great and ever new privilege. Pain is a more terrible lord of mankind than even death itself." Albert Schweitzer [11].

Pain is a major public health issue throughout the world. The gap between an increasingly sophisticated knowledge of pain and its treatment and the effective application of that knowledge is large and widening. Both acute and chronic pain is often poorly managed for a wide variety of cultural, attitudinal, educational, political, and logistical reasons. Frustrated by the slow pace of change, pain clinicians and national and international pain associations have responded in various ways.

The term "right" is a convenient way of both promoting an ideal and enforcing a duty. Two key factors underlie the emergence of the right to adequate pain The first is the accumulation of evidence from many sources that pain is inadequately treated and so an "ethic of undertreatment" must be overcome. The second is the widespread language of "rights" since the advent of international human rights laws,

the rise of the consumer movement, the culture of rights for minority groups, and the promotion of individualism, especially in Western liberal societies.

However, it is difficult to articulate a right whose nature is not precisely specified. Is the statement that patients have a right to pain relief an exercise in clinical recommendation or moral persuasion, or a statement of law? If it has any pretenses to the latter, the difficulties are clear in affirming such a right that has neither legal precedent nor enforceability.

One response to the undertreatment of pain has been to promote the concept of pain relief as a public health issue of such critical importance that it constitutes a universal human right [12–16]. International human rights are articulated in the foundation covenants of the United Nations: the Universal Declaration of Human Rights (1948), the International Covenant on Civil and Political Rights (1966), and the International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966). ICESCR articulates the right "of everyone to the enjoyment of the highest attainable standard of physical and mental health." The covenant obliges its signatories to provide, to the maximum of their available resources, the rights it guarantees, but contains no express right to pain relief.

Nevertheless, a strong argument could be made that a right to pain relief may be implied from the expressed right to health. The concept of health has been defined by various international organizations. In 1949, the Constitution of the WHO defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Provision of adequate pain relief falls comfortably within this definition.

Pain and natural disaster

The treatment for pain in emergency medicine is a matter of increasing interest. Available data indicate that in both normal conditions and during major-emergencies, the majority of healthcare providers are culturally and professionally unprepared to adequately treat acute pain conditions. In case of natural disasters, opioid drugs are often unavailable. Moreover, no guidelines or validated protocols provide adequate indications for the treatment for pain in case of massive emergencies. Training of the medical and nursing staff, in both formal and continuing, or on-the-job education is needed to adequately face a devastating emergency. Unfortunately, there is an inadequate level of training among healthcare professionals, even in highly seismic areas, and the source of aid is frequently limited, especially in the immediate aftermath of a disaster to those already present at the scene. Pain inadequately treated may modify the characteristics of the pain itself. Pain is no longer considered just a symptom, but itself becomes an autonomous pathology heavily influencing the social life and psycho-social aspects of a person. In the disastrous situation following an earthquake, an inadequate treatment of pain was the major violation of the psycho-physical integrity of individuals and a severe

violation of their rights, as human beings and patients [17].

Sabina case

In September 2008 a classified ad appeared in a newspaper in Colombia. It read: "Cancer is killing us. Pain is killing me because for several days I have been unable to find injectable morphine in any place. Please Mr. Secretary of Health, do not make us suffer any more."

The ad was placed on behalf of Sabina (not her real name), a 36-year-old woman with advanced uterine cancer. As is common with advanced cancer, Sabina was suffering from a lot of pain. She had a constant throbbing in her spine, extremities, head and, especially, stomach. The pain had made her completely bedridden, prevented her from ever sleeping more than twenty minutes at a time, and, maybe most significantly, made meaningful interaction impossible with her 13-year-old and soon-to-be orphaned daughter. In an interview with Human Rights Watch, Sabina's mother told that towards the end of her life Sabina could not even touch her daughter because of the pain. Sabina's doctor had prescribed morphine, a strong analgesic that can relieve most cancer pain. But Sabina couldn't get it. Pharmacists told her mother that they had run out and said she might be able to get morphine in Bogota. But how could her mother make a 480-kilometer trip to Bogota when her dying daughter needed her at home? Driven to desperation by her daughter's suffering, Sabina's mother repeatedly wrote to the local health department asking for help and, when nothing changed, placed the newspaper ad. The newspaper ad was noticed. Officials in Bogota, Colombia's capital, promised to look into the situation and make sure Sabina got her morphine. Unfortunately, these efforts came too late. After months of suffering, it was death-not morphine-that finally relieved Sabina of her pain.

Sabina's story could have happened in almost any developing country. Morphine and other strong pain medications are virtually unavailable in more than 150 countries around the world. The World Health Organization (WHO) estimates that tens of millions of people worldwide suffer from moderate to severe pain without access to treatment every year, including 5.5 million people with terminal cancer.

What makes Sabina's story particularly devastating is that her suffering was entirely preventable. If she had had access to inexpensive morphine, she should not have spent her last two months wracked in agony. She would have been able to spend time with her mother and daughter instead of isolated in a world of pain and suffering [18].

QUIPS: quality improvement in postoperative pain management

Despite the availability of high-quality guidelines and advanced pain management techniques acute postoperative pain management is still far from being satisfactory. The QUIPS

(Quality Improvement in Postoperative Pain Management) project aims to improve treatment quality by means of standardised data acquisition, analysis of quality and process indicators, and feedback and benchmarking. During a pilot phase funded by the German Ministry of Health (BMG), a total of 12,389 data sets were collected from six participating hospitals. Outcome improved in four of the six hospitals. Process indicators, such as routine pain documentation, were only poorly correlated with outcomes. To date, more than 130 German hospitals use QUIPS as a routine quality management tool. An EC-funded parallel project disseminates the concept internationally. QUIPS demonstrates that patient-reported outcomes in postoperative pain management can be benchmarked in routine clinical practice. Quality improvement initiatives should use outcome instead of structural and process parameters. The concept is transferable to other fields of medicine [19].

Evaluation of the "initiative pain-free clinic" for quality improvement in postoperative pain management

Demonstration of improved postoperative pain management by implementation of the S3 guidelines on treatment of acute perioperative and posttraumatic pain, by the integrated quality management concept "quality management acute pain" of the TÜV Rheinland or by participation in the benchmark project "Quality improvement in postoperative pain management" (QUIPS).

A prospective controlled study (pre-post design) was carried out in hospitals with various levels of care comparing three hospital groups (n = 17/7/3, respectively). Group 1: participation in the QUIPS project (intraclinic and interclinic comparison of outcome data of postoperative pain treatment), group 2: participation in the quality management acute pain program (certified by TÜV Rheinland), group 3: control group with no involvement in either of the two concepts. In all three groups, an anonymous data collection was performed consisting of patient-reported pain intensity, side effects, pain disability and patient satisfaction. Pain therapy intervention was carried out only in group 2 by an integrated quality management concept (certification project: Quality management acute pain) with a package of measures to improve structure, process and outcome quality.

The TÜV Rheinland certified clinics (group 2) showed a significant improvement in the pre-post comparison (before versus after certification) in the areas maximum pain (from visual analogue scale VAS 4.6 to 3.7), stress pain (5.3 to 3.9), pain-related impairment (proportion of patients with pain-linked decreased mobility and movement 26% to 16.1%, coughing and breathing 23.1% to 14.3%) and patient satisfaction (from 13.2 to 13.7; scale 0 completely unsatisfied, 15 very satisfied). The clinics with participation in QUIPS for 2 years also showed a significant improvement in stress pain (numeric rating scale NRS for pain 4.5 to 4.2), pain-linked-limitation of coughing and breathing (28% to

23.6%), and patient satisfaction (from 11.9 to 12.4). There were no differences in postoperative nausea and vomiting between any of the groups.

The main objective of the certification concept quality management acute pain as a tool for the successful implementation of the S3 guidelines on treatment of acute perioperative and posttraumatic pain, led to a significant improvement in patient outcome. Participation in QUIPS is an ideal supplement to TÜV Rheinland certification and can be recommended as a benchmarking tool to evaluate outcome [20,21].

Competing interests

The authors declare that they have no competing interests.

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